

FORM PTO-1595  
(Rev. 6-93)Recordation Form Cover Sheet  
(Patents Only)U.S. Department of Commerce  
Patent and Trademark Office

To the Honorable Asst. Commissioner for Patents. Please record the attached original documents or copy thereof

## 1. Name of conveying party(ies):

Chris Silvia

Additional name(s) of conveying parties attached? ☐ Yes  
☒ No.

## 3. Nature of conveyance:

- ☒ Assignment ☐ Merger  
☐ Security Agreement ☐ Change of Name  
☐ Other:

Execution Date: 12/15/98

## 2. Name and address of receiving party(ies)

Name: ICAGEN, Incorporated

Internal Address:

Street Address: 4222 Emperor Boulevard, Ste. 460r

City: Durham State: North Carolina ZIP: 27703

Additional names and addresses attached? ☐ Yes ☒ No

U.S. PTO  
09/519076  
03/06/00

## 4. Application Number(s) or Patent Numbers.

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No(s): 09/176,664

B. Patent No(s):

Additional numbers attached? ☐ Yes ☒ No

## 5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Jonathan Alan Quine  
TOWNSEND AND TOWNSEND AND CREW LLP  
Two Embarcadero Center, 8<sup>th</sup> Floor  
San Francisco, California 94111-3834  
(415) 576-0200

## 6. Total number of applications and patents involved 1

7. Total fee (37 CFR 3.41): \$40.00

☐ Enclosed ☒ Charge Fees to Deposit Account☒ Charge any additional fees associated with this paper or during the pendency of this application, or credit any overpayment, to deposit account.

8. Deposit account number: 20-1430

DO NOT USE THIS SPACE

## 9. Statement and signature.

To the best of my knowledge and belief, the foregoing is true and correct and any attached copy is a true of copy of the original document.

Jonathan Alan Quine  
Name of Person Signing

*Jonathan Alan Quine*  
Signature

2-10-99  
Date

Atty Reg. No. 41,261

Total number of pages including cover sheet, attachments and document 3

10. Change Correspondence Address to that of Part 5? ☒ Yes ☐ No

OMB No. 0651-0011 (exp. 4/94)

Do not detach this portion

Mail documents to be recorded with required cover to:

Asst. Commissioner for Patents  
Box: Assignments  
Washington, D.C. 20231

ASSIGNMENT OF PATENT APPLICATION

SOLE

WHEREAS, Chris Silvia of 3105 Broomsedge Way, Durham, North Carolina 27712, hereinafter referred to as "Assignor," are the inventor of the invention described and set forth in the below identified application for United States Letters Patent:

Title of the Invention: **A pH SENSITIVE POTASSIUM CHANNEL  
IN SPERMATOCYTES**

Date(s) of execution of Declaration: Dec 15 1998

Filing date: **October 21, 1998**; Application No.: **09/176,664**; and

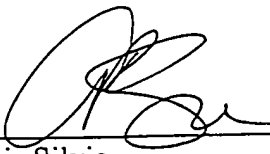
WHEREAS, ICAGEN, Incorporated a Delaware corporation, located at **4222 Emperor Boulevard, Ste. 460, Durham, North Carolina 27703**, hereinafter referred to as "Assignee," is desirous of acquiring an interest in the invention and application and in any Letters Patent and Registrations which may be granted on the same;

For good and valuable consideration, receipt of which is hereby acknowledged by Assignors, Assignors have assigned, and by these presents do assign to Assignee all right, title and interest in and to the invention and application and to all foreign counterparts (including patent, utility model and industrial designs), and in and to any Letters Patent and Registrations which may hereafter be granted on the same in the United States and all countries throughout the world, and to claim the priority from the application as provided by the Paris Convention. The right, title and interest is to be held and enjoyed by Assignee and Assignee's successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignors had this assignment not been made, for the full term of any Letters Patent and Registrations which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignors further agree that they will, without charge to Assignee, but at Assignee's expense, (a) cooperate with Assignee in the prosecution of U.S. Patent applications and foreign counterparts on the invention and any improvements, (b) execute, verify, acknowledge and deliver all such further papers, including patent applications and instruments of transfer and (c) perform such other acts as Assignee lawfully may request to obtain or maintain Letters Patent and Registrations for the invention and improvements in any and all countries, and to vest title thereto in Assignee, or Assignee's successors and assigns.

IN TESTIMONY WHEREOF, Assignors have signed their names on the dates indicated.

Date: 12/15/98

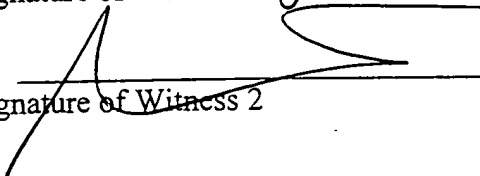
  
Chris Silvia

SIGNATURE WITNESSED BY:

(1) Date: 12/16/98

  
Signature of Witness 1

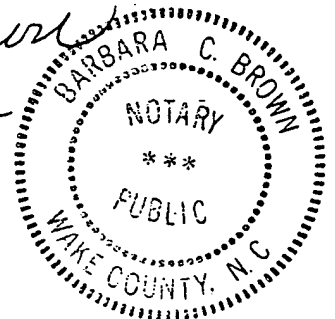
(2) Date: 12/16/98

  
Signature of Witness 2

182586

*Signed and witnessed in my presence  
this 16<sup>th</sup> day of December, 1998.*

*Barbara C. Brown  
Notary Public  
My commission expires 1-28-01*



TOWNSEND & CREW



18512-000/2045  
UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
ASSISTANT SECRETARY AND COMMISSIONER  
OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

A. Parent

MAY 28, 1999 JUN -4 AM 8:24

PTAS  
TOWNSEND AND TOWNSEND AND CREW LLP  
JONATHAN ALAN QUINE  
TWO EMBARCADERO CENTER, 8TH FLOOR  
SAN FRANCISCO, CALIFORNIA 94111-3834



\*100986824A\*

jc530 U.S. PRO  
09/519076



03/06/00

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 02/22/1999

REEL/FRAME: 9813/0173  
NUMBER OF PAGES: 4

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:  
SALKOFF, LAWRENCE

DOC DATE: 01/15/1999

ASSIGNOR:  
SCHREIBER, MATTHEW

DOC DATE: 01/15/1999

ASSIGNEE:  
WASHINGTON UNIVERSITY, THE  
ONE BROOKINGS DRIVE  
ST. LOUIS, MISSOURI 63130

SERIAL NUMBER: 09176664  
PATENT NUMBER:

FILING DATE: 10/21/1998  
ISSUE DATE:

TARA WASHINGTON, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
ASSISTANT SECRETARY AND COMMISSIONER  
OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231



\*100986824B\*

AUTHORIZATION TO CHARGE ADDITIONAL FEES TO DEPOSIT ACCOUNT

MAY 28, 1999

TO: OFFICE OF FINANCE  
FROM: ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS  
SUBJECT: DEPOSIT ACCOUNT CHARGE(S)



CHARGE THE DEPOSIT ACCOUNT LISTED BELOW ADDITIONAL FEE(S) AS INDICATED  
BELOW. AUTHORIZATION TO CHARGE ADDITIONAL FEES HAS BEEN PROVIDED PER  
THE ATTACHED COVER SHEET, OR BY DIRECT CONTACT WITH THE CUSTOMER.

DEPOSIT ACCOUNT NUMBER: 201430  
PROPERTY NUMBER: 09176664

RECORDING FEES:

FEE CODE: 581 AMOUNT: 40

IF YOU HAVE ANY QUESTIONS REGARDING THIS NOTICE, YOU MAY CONTACT  
THE INDIVIDUAL WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723.

TARA WASHINGTON, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

TRADEMARK SERVICE FEES:	FEE CODE:
RECORDING FIRST MARK	481
RECORDATION SECOND AND SUBSEQUENT MARK IN SAME DOCUMENT	482
LABOR CHARGES FOR SERVICES PER HOURS OR FRACTION THEREOF	484
UNSPECIFIED OTHER SERVICES	485

PATENT SERVICE FEES:

RECORDING EACH PATENT ASSIGNMENT, 581

AGREEMENT, OTHER PAPER, PER PROPERTY	
LABOR CHARGES FOR SERVICES PER HOUR	584
(\$30) OR FRACTION THEREOF	
UNSPECIFIED OTHER SERVICES	585

03-17-1999

Attorney Docket No. 018512-000120



100986824

 Recordation Form Cover Sheet  
 (Patents Only)

 U.S. Department of Commerce  
 Patent and Trademark Office

To the Honorable Asst. Commissioner for Patents. Please record the attached original documents or copy thereof

## 1. Name of conveying party(ies):

Lawrence Salkoff and Matthew Schreiber

Additional name(s) of conveying parties attached? ☐ Yes☒ No.

2-22-99

## 3. Nature of conveyance:

☒ Assignment ☐ Merger☐ Security Agreement ☐ Change of Name☐ Other:

Execution Date: 1/15/99 and 1/15/99

## 2. Name and address of receiving party(ies)

Name: The Washington University

Internal Address:

Street Address: One Brookings Drive

City: St. Louis State: Missouri ZIP: 63130

Additional names and addresses attached? ☐ Yes ☒ No

## 4. Application Number(s) or Patent Numbers.

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No(s): 09/176,664

B. Patent No(s):

Additional numbers attached? ☐ Yes ☒ No

## 5. Name and address of party to whom correspondence concerning document should be mailed:

 Name: Jonathan Alan Quine  
 TOWNSEND AND TOWNSEND AND CREW LLP  
 Two Embarcadero Center, 8<sup>th</sup> Floor  
 San Francisco, California 94111-3834  
 (415) 576-0200

## 6. Total number of applications and patents involved 1

7. Total fee (37 CFR 3.41): \$40.00

☐ Enclosed ☒ Charge Fees to Deposit Account☒ Charge any additional fees associated with this paper or during the pendency of this application, or credit any overpayment, to deposit account.

8. Deposit account number: 20-1430



DO NOT USE THIS SPACE

## 9. Statement and signature.

To the best of my knowledge and belief, the foregoing is true and correct and any attached copy is a true of copy of the original document.

 Jonathan Alan Quine  
 Name of Person Signing

Signature

Date

2-10-99

Atty Reg. No. 41,261

Total number of pages including cover sheet, attachments and document 4

10. Change Correspondence Address to that of Part 5? ☒ Yes ☐ No

OMB No. 0651-0011 (exp. 4/94)

Do not detach this portion

Mail documents to be recorded with required cover to:

 Asst. Commissioner for Patents  
 Box: Assignments  
 Washington, D.C. 20231



Attorney Docket No. 018512-000120

ASSIGNMENT OF PATENT APPLICATION

JOINT

WHEREAS, Lawrence Salkoff of 6327 Alamo Avenue, Clayton, Missouri 63105 and Matthew Schreiber of 7561 York Drive., Apt. 2N, Clayton, Missouri 63105, hereinafter referred to as "Assignors," are the inventors of the invention described and set forth in the below identified application for United States Letters Patent:

Title of the Invention: **A pH SENSITIVE POTASSIUM CHANNEL  
IN SPERMATOCYTES**

Date(s) of execution of Declaration: 1-15-99 (both)

Filing date: **October 21, 1998**; Application No.: **09/176,664**; and

WHEREAS, The Washington University a Missouri corporation, located at **One Brookings Drive, St. Louis, Missouri 63130**, hereinafter referred to as "Assignee," is desirous of acquiring an interest in the invention and application and in any Letters Patent and Registrations which may be granted on the same;

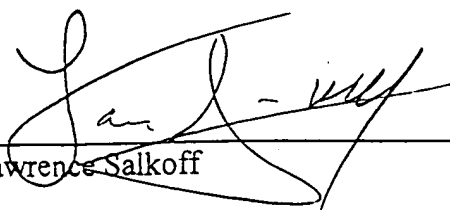
For good and valuable consideration, receipt of which is hereby acknowledged by Assignors, Assignors have assigned, and by these presents do assign to Assignee all right, title and interest in and to the invention and application and to all foreign counterparts (including patent, utility model and industrial designs), and in and to any Letters Patent and Registrations which may hereafter be granted on the same in the United States and all countries throughout the world, and to claim the priority from the application as provided by the Paris Convention. The right, title and interest is to be held and enjoyed by Assignee and Assignee's successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignors had this assignment not been made, for the full term of any Letters Patent and Registrations which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignors further agree that they will, without charge to Assignee, but at Assignee's expense, (a) cooperate with Assignee in the prosecution of U.S. Patent applications and foreign counterparts on the invention and any improvements, (b) execute, verify, acknowledge and deliver all such further papers, including patent applications and instruments of transfer and (c) perform such other acts as Assignee lawfully may request to obtain or maintain Letters Patent and Registrations for the invention and improvements in any and all countries, and to vest title thereto in Assignee, or Assignee's successors and assigns.

IN TESTIMONY WHEREOF, Assignors have signed their names on the dates indicated.

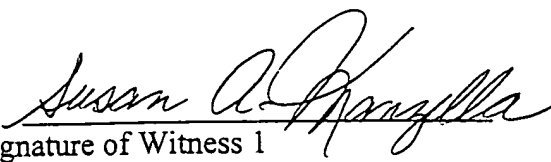


Date: 1-15-99

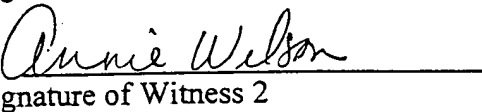
  
Lawrence Salkoff

SIGNATURE WITNESSED BY:


(1) Date: 1/15/99

  
Signature of Witness 1

(2) Date: 1/15/99

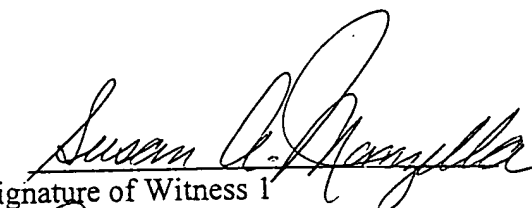
  
Signature of Witness 2

Date: 1-15-99

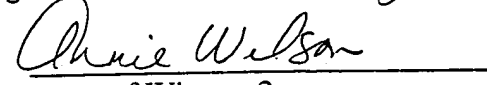
  
Matthew Schreiber

SIGNATURE WITNESSED BY:

(1) Date: 1/15/99

  
Signature of Witness 1

(2) Date: 1/15/99

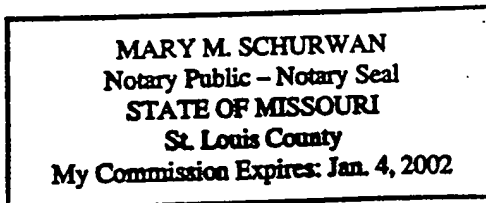
  
Signature of Witness 2

STATE OF MISSOURI     )  
                                      )  
COUNTY OF ST. LOUIS    )

On this 15<sup>th</sup> day of January, 1998<sup>9</sup>, before me, a Notary Public, within and for the State of Missouri personally appeared Lawrence Salkoff, to me known to be one of the persons described in and who executed the foregoing assignment and acknowledged that he executed the same as his free act and deed.

In witness whereof, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Mary M. Schurwan  
Notary Public

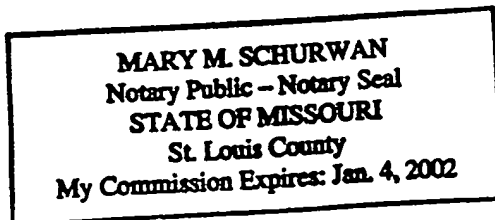


STATE OF MISSOURI     )  
                                      )  
COUNTY OF ST. LOUIS    )

On this 15<sup>th</sup> day of January, 1998<sup>9</sup>, before me, a Notary Public, within and for the State of Missouri personally appeared Matthew Schreiber, to me known to be one of the persons described in and who executed the foregoing assignment and acknowledged that he executed the same as his free act and deed.

In witness whereof, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Mary M. Schurwan  
Notary Public

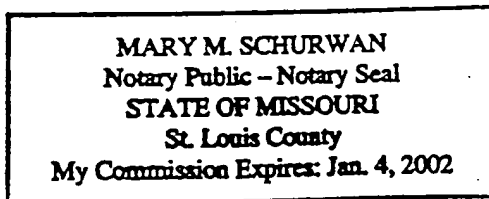


STATE OF MISSOURI     )  
                                      )  
COUNTY OF ST. LOUIS    )

On this 15<sup>th</sup> day of January, 1998<sup>9</sup>, before me, a Notary Public, within and for the State of Missouri personally appeared Lawrence Salkoff, to me known to be one of the persons described in and who executed the foregoing assignment and acknowledged that he executed the same as his free act and deed.

In witness whereof, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Mary M Schurwan  
Notary Public

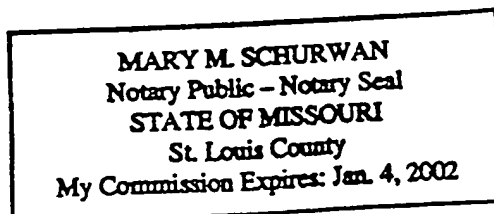


STATE OF MISSOURI     )  
                                      )  
COUNTY OF ST. LOUIS    )

On this 15<sup>th</sup> day of January, 1998<sup>9</sup>, before me, a Notary Public, within and for the State of Missouri personally appeared Matthew Schreiber, to me known to be one of the persons described in and who executed the foregoing assignment and acknowledged that he executed the same as his free act and deed.

In witness whereof, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Mary M Schurwan  
Notary Public



CERTIFICATE UNDER 37 C.F.R. § 3.73(b)

Applicant: Salkoff et al.

Application No.: 09/176,664

Filed: 10/21/98

For: PH SENSITIVE POTASSIUM CHANNEL IN SPERMATOCYTES

The Washington University, a university

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

certifies that it is assignee of the patent application identified above by virtue of either:

A. An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, Frame(s) \_\_\_\_\_, or for which a copy thereof is attached.

OR

B. A chain of title from the inventor(s), of the patent application identified above, to the current assignee as shown below:

1. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.
2. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.
3. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☐ Copies of assignments or other documents in the chain of title are attached.

The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date : 1/22/99  
Name : \_\_\_\_\_  
Title : \_\_\_\_\_  
Signature: Andrew Neighbour

182613

Andrew Neighbour, Ph.D.  
Associate Vice Chancellor  
For Technology Management